



MACOMB COUNTY MICHIGAN

Targeted Industries Report Focusing Macomb County's Economic Development Efforts

July 2006

Funded by:
Macomb County Board of Commissioners
Macomb County Department of Planning and Economic Development

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Overview

The following Emerging Sectors Study was conducted from February 2006 through May 2006. The results of the study reflect the best professional opinion of Intellitrends LLC based on the data gathered.

Sources used in the compiling of this report included data and/or interviews:

- Macomb County Department of Planning & Economic Development
- Macomb County Chambers of Commerce
- Center for Work Force Development and Policy, Macomb Community College
- Macomb County Business Community
- Leadership Macomb
- Automation Alley
- Oakland County Economic Development
- Detroit Regional Chamber
- Michigan Economic Development Corporation
- SEMCOG
- U.S. Census Bureau
- U.S. Department of Labor
- U.S. Department of Commerce
- County events
- Chamber of Commerce functions
- Internet Web-sites (Multiple other county web-sites)
- International information sources
- International City/County Management Association
- Site selection consultants
- Trade publications
- Trade Associations
- News Articles

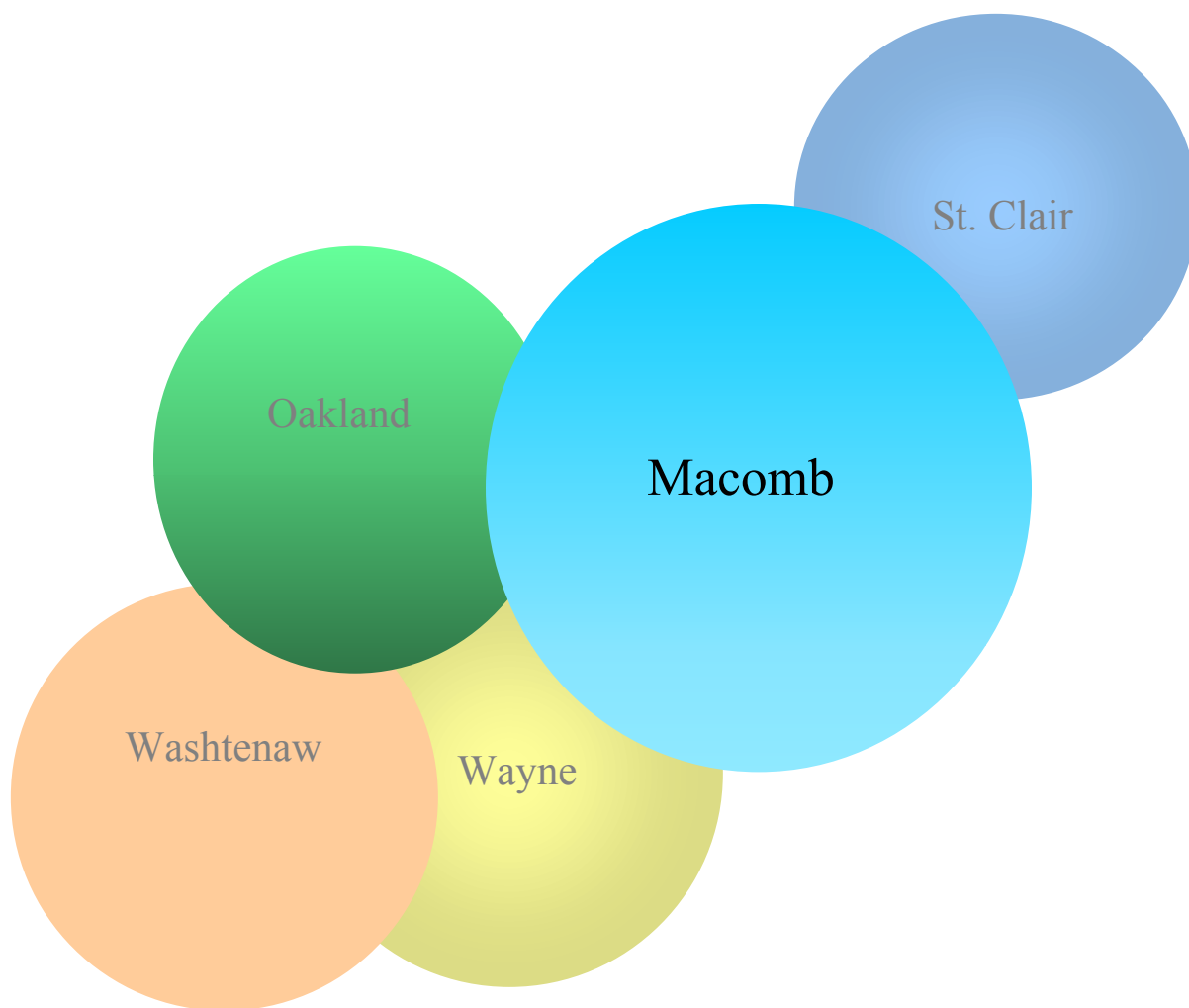
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**“An economic entity that exists on its own, but
draws strength from regional partnership and
collaboration”**

(Personal Interview Macomb County personnel - 2006)





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1. Introduction

The following Targeted Industries Report was commissioned and developed for the purposes of identifying and focusing efforts of a successful economic development program for Macomb County, Michigan. Subsequent efforts from this report will be the development of specific marketing and branding strategies aimed at targeting those industries identified.

Attracting *new* companies into an area as well as helping those already established to grow is a multi-faceted challenge embraced today by every economic area in the United States. A recent survey by the International City/County Management Association of national government organizations found that 98% are currently active in economic development efforts. While 44% of the focus is on **business attraction and recruitment**, an additional 41% is focused on **business retention**.

In the analysis and development of this report, three areas of growth were focused on:

1. Business Retention & Expansion:

- *Providing programs and services to think outside the box
 - What can we do to get them to grow?

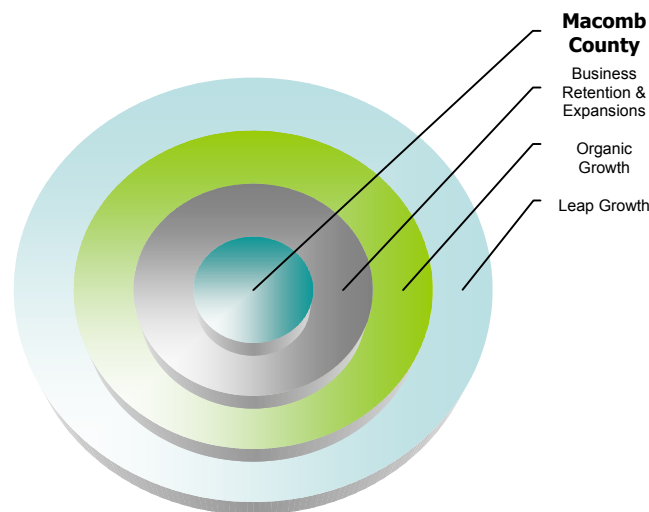
2. Organic Growth: Attracting similar or complementary businesses building on common processes and resources

- *Growing the existing assets base
 - Why do businesses like being here?

3. Leap Growth: “Out of the Box” growth

Attracting new business capitalizing on assets desired. For example, can we effectively target...

- *Advanced Manufacturing
- *Alternative Energy
- *Bio-Technology
- *Homeland Security/Defense
- *Medical/Healthcare





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1.1.1. Targeting Overview

There are various ways that can be used to identify what industries or industry sectors should be considered “a target” for economic development. The following process integrated three (3) steps to identify the optimum economic development “targets” for Macomb:

- 1.) **Internal Assessment of Macomb assets** and optimum targets for economic development – What are our assets that can be leveraged? What are our challenges?
 - Personal Interviews with key government/business stakeholders (n=15);
 - Review of internal studies/reports and briefs regarding strategic goals and top economic priorities.
- 2.) **Identification and analysis of key industry segments** that shape Macomb’s economic base:
 - A survey of Macomb based businesses within those segments (n=75)
 - Review of U.S. County Business Patterns data (U.S. Census Bureau).
- 3.) **Identification of industries that are in growth mode** and in line to capitalize on Macomb assets:
 - Re-classification of Macomb business into emerging clusters*
 - Industry identification and specific sub-sector opportunities

*Reclassification of Macomb business is based on regroupings of The North American Industry Classification System (NAICS), a replacement of the traditional U.S. Standard Industrial Classification (SIC) system. NAICS was developed jointly by the U.S., Canada, and Mexico to provide comparability in statistics about business activity across North America. (NAICS)



2. Economic and Business Development Opportunities for Macomb County

In the pursuit of economic and business development, globalization is leading states and regional entities to **focus on what they do best**. Nationally, CEO's surveyed in March 2006 were asked what criteria were most important when ranking U.S. states as a "place to do business." The top 7 most important issues in choosing where to do business were:

1. Workforce (Skills, quality, training)
2. Labor costs (including wages, Healthcare, Workers' Comp.)
3. Taxes
4. Regulation
5. Infrastructure
6. Quality of Life
7. Political Environment

Demonstrated higher skill levels and an educated workforce are at the forefront of decisions by companies relocating and expanding. In seeking new locations, **manufacturing companies** globally are paying more attention to:

- Proximity to institutions of higher learning;
- Customized training programs;
- Availability of incentives; and
- Keeping workers up to speed with the latest technologies.

Macomb County offers a concentration of manufacturing skill and expertise in approximately 73,000 workers, or 23% of its employment base. Skilled in manufacturing methods, technologies, and processes, Macomb is in an excellent position to differentiate **and** collaborate with the 8 county region of Southeast Michigan to augment or enhance their attributes. Through education and training initiatives, Macomb's greatest opportunity is to leverage its existing manufacturing base by using and adapting existing skills to new market needs with skill assets in:

- Production
- Transportation
- Material Moving
- Design and Research
- Quality Controls
- Technical Management
- Logistics
- Computer controlled machine tool operations

Thirty-two percent of manufacturing businesses already located in the County cite "skilled workforce" as one of the primary reasons they selected Macomb County.



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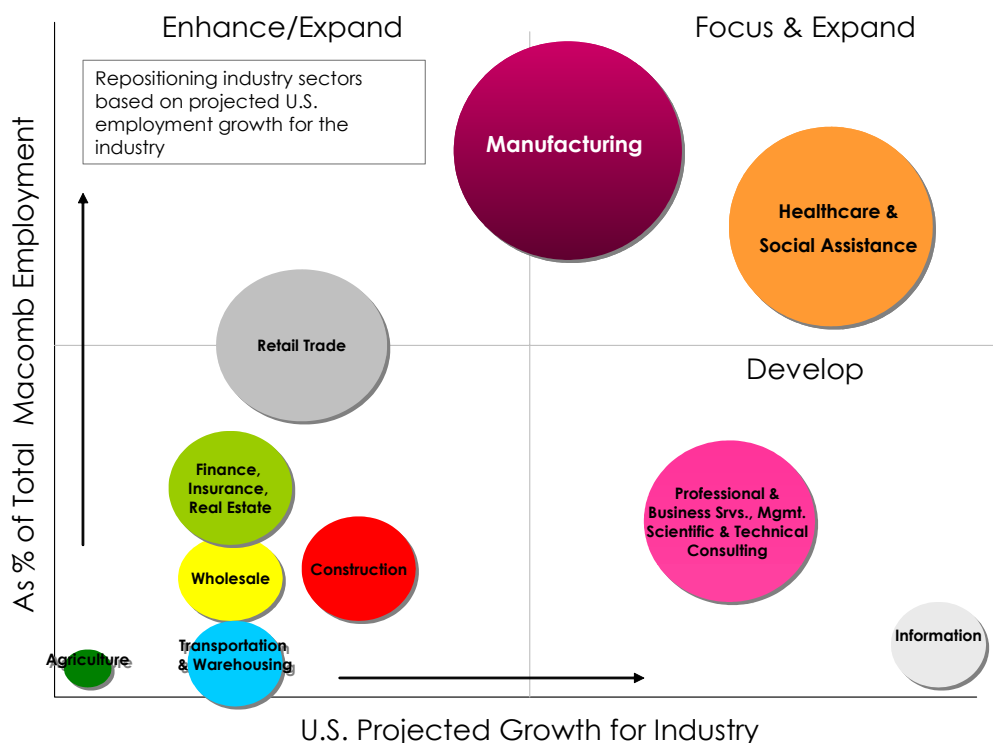
2.1.1. Mapping Macomb Industry Strengths

The graph below reflects a mapping of traditional industry segments in Macomb plotting current employment concentration against U.S. projections for employment growth in those industries. (The size of the bubble represents the relative size of employment in that sector.)

This mapping shows that Macomb's greatest areas of economic and employment assets are currently in **Manufacturing and Healthcare**, two broad industry sectors that have already high employment concentrations in Macomb and are also projected as high employment growth areas over the next 8-10 years by the U.S. Department of Labor.

The industries of **Professional and Business Services Management and Scientific and Technical Consulting** (encompassing services in Business, Engineering, Computer Design & Consulting, Management Consulting and R&D) as well as those in **Information Technology** (telecommunications, Internet service providers) while making up a smaller portion of Macomb employment, are two areas that are also projected to have strong employment growth through 2014 and should continue to be developed as support industries.

Macomb Industry Profile





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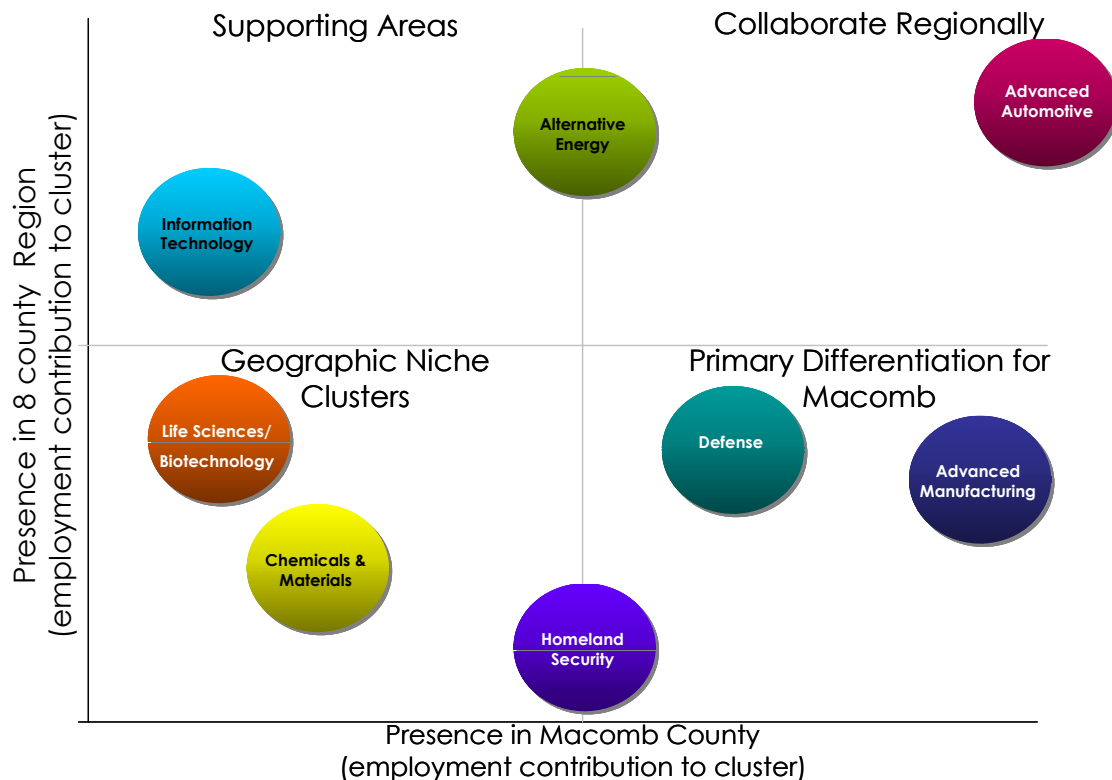
2.1.2 Mapping Targeted Industry Opportunities for Macomb

The graph below maps emerging growth sectors in the U.S. against their assessed business opportunity for Macomb within a regional framework. Plotting was based on the concentration of employment in the 8 County region* in these defined sectors (defined by NAICS code groupings) against Macomb's employment concentrations, grouped by the same NAICS codes.

The lower right quadrant containing **Defense and Advanced Manufacturing** are considered key clusters that are represented by above average employment in Macomb as compared to the 8 county region. While they are present in a regional focus, they present unique opportunities for Macomb as areas to “differentiate” within the region due to current strong employment and skill sets in supporting traditional industry areas that would lend themselves to adaptation and skill transfer.

Advanced Automotive represents a strong target for Macomb uniquely due to the manufacturing base but is also a strong opportunity for collaboration as a regional effort.

Collaborating and Differentiating within the Region



*8 County Region: Macomb, Oakland, Wayne, St. Clair, Livingston, Monroe, Washtenaw, Genesee



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Clusters in the lower left quadrant (**Life sciences/Bio-technology, Chemical & Materials**) do not represent primary areas of strength for Macomb based on employment in those clusters. They tend to be more geographically concentrated in other areas of the 8 county region and particularly for **Life sciences/Bio-technology**, have workforce requirements that are not primary assets in the Macomb employee base.

Likewise, **Information Technology** while a strength for the region as a whole is not considered a unique strength for Macomb due to limited presence of these types of companies. However, they can be targeted as a “supporting sector” in that the opportunity is for sub-set development under one of the 3 primary targets.

Two emerging sectors, with high projected growth, yet unknown “quantifiable” presence in the region are **Alternative Energy** and **Homeland Security**. Due to their direct link with both Advanced Automotive and Defense respectively, they represent emerging sectors for further focus.



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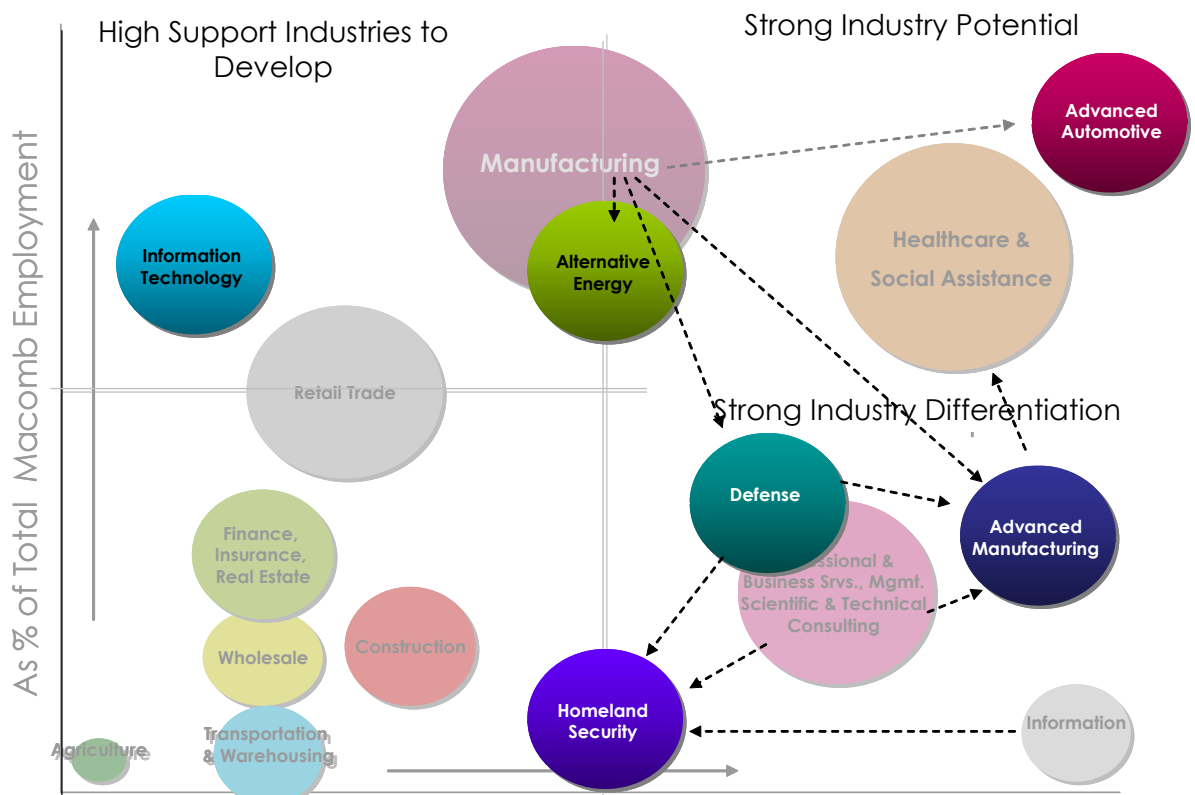
2.1.3 Identifying Optimum Target Sectors

Overlaying the profile of traditional industry sectors for Macomb County (transparent bubbles) with the ability to compete in emerging sectors (dark bubbles) shows that the optimum targets for Macomb should be:



The dotted lines represent expansion from traditional industries to these emerging sectors and the inter-relationships that could be cultivated and developed in support of these targets.

Industry Expansion and Targeting



U.S. Projected Growth for Industry

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2.1.4 Targeting within Sectors

The following are sub-sectors that should be the target of business attraction or expansion of market capabilities for those businesses already based in Macomb County.

1. Advanced Manufacturing

- ✓ Flexible manufacturing cells or systems
- ✓ Robotics
- ✓ High-speed machining
- ✓ Supervisory control and data acquisition (SCADA)
- ✓ Automated sensor-based inspection/testing systems
- ✓ Automated vision systems
- ✓ Lasers used in material processing
- ✓ Distributed control systems
- ✓ Rapid prototyping systems
- ✓ Computer-aided design/engineering software (CAD/CAE)
- ✓ Programmable logic controllers (PLCs)
- ✓ Use of inspection data in manufacturing control
- ✓ MRP or Enterprise Resource Planning (ERP) software
- ✓ Automated parts identification (i.e. bar coding)
- ✓ Modeling or simulation techniques

2. Advanced Automotive

Body & Exterior

- ✓ Lightweight materials
- ✓ Unit body construction
- ✓ Paint/Coatings/Adhesives
- ✓ Lighting Adaptive headlamps, headlamp cleaning systems, high performance halogen & Xenon lighting, LED lighting

Power train

- ✓ Enhanced fuel economy: Fuel cell, Hybrid electric, Hydrogen fueled
- ✓ Advanced batteries
- ✓ Emissions control

Ride & handling

- ✓ Brake & Gas (adjustable pedals, park & brake by wire, four wheel steering, steer by wire)
- ✓ Low rolling resistance tires (Advanced tire pressure monitoring systems, airless tires, self-inflating tires, smart run-flat tires)



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Safety systems

- ✓ Sensing systems: Child left in vehicle warning, lane departure warning & aid, occupant sensing for intelligent airbag deployment, Pedestrian sensing & protection, pre-crash sensing, radar enabled collision warning systems, voice/fingerprint vehicle entry systems, rear of vehicle cameras
- ✓ Safety features: Rollover control & protection, side airbags & electronics

Interiors

- ✓ Seating: (climate controlled seats – Heated & cooled, dynamic seating, pivoting seats)
- ✓ HVAC: (advanced air conditioning systems, Multi-zone thermo electric HVAC systems)
- ✓ Navigation: Automated driving software, auto parking, Intelligent navigation, real-time traffic updates, projected imaging

3. Defense/Homeland Security

✓ Technology:

- Aircraft protection
- Electronic "no-fly" zones
- Explosion-containing luggage containers
- Explosives detection
- Fuselage ballistic armor
- Remote test site for use on U.S. government, commercial, and foreign government contracts
- Video text recognition to passively monitor watercraft, hazardous materials tankers, and aircraft
- Security-related product development

✓ Information analysis and infrastructure protection

- Cyber security
- Network intrusion detection
- Multilevel software security systems
- Systems engineering and integration
- Intelligence
 - Collaborative analysis
 - Aerial intelligence
 - Processing and reporting
 - Simulation suites for intelligence collection systems
- Signal processing
- Geolocation algorithms
- Computer tools, simulations, and networks
- Offensive and defensive operations programs
- Communications system design and development
- Test beds
- Terrestrial and space antenna systems



✓ **Emergency preparedness and response**

- Autonomous command and control systems for first responders
- Chemical/biological agent detection
- Decontamination coatings and sprays
- Diagnostic tests
- Differential GPS laser ranging sextant for real-time target coordinates on unregistered battlefields
- Explosives detection
- GPS-based precision strike weaponry
- Ground- and foliage-penetrating radar from airborne platforms or field vehicles
- Instrumented combat training system
- Joint Training Experimentation Program (JTEP)
- Nuclear materials detection
- Permeable blast barriers to mitigate effects from explosions
- Infrastructure collapse assessment tool for impact and blast loading
- Precision navigation
- Preclinical development services for anti-infective therapeutics and vaccines
- Reliable wireless systems
- Speech-enabled handheld language translation devices
- Support systems for covert operations and hostage rescues

✓ **Threat assessment tools and strategies**

- Unexploded ordnance and mine detection and neutralization
- Wireless networking to assist small unit operations and Unmanned Combat Air Vehicle (UCAV) teams

4. Healthcare

- ✓ Medical equipment & supplies
- ✓ Medical devices
- ✓ Assisted Living/Residential Care
- ✓ Outpatient/Ambulatory



3. Report Summary

Multiple studies and presentations to date have clearly identified strong challenges that Macomb County faces. The shrinking state of the traditional domestic auto industry, increasing unemployment due to loss of manufacturing jobs and significant growth of a “working poor population” clearly establish the need and challenge for focused strategies in economic development and expansion.

Macomb is not alone. According to a 2005 survey of U.S. Municipalities and Counties, while 98% of government entities cite they are seeking to attract new business, 70% also cite that they have no formal written business attraction plan. Almost one in four (22%) claim “manufacturing” as their primary economic base and for one in three, it remains the primary industry focus of their economic development efforts.

3.1.1. Manufacturing Sector Outlook

The outlook through 2014 for the manufacturing sector (*U.S. Department of Labor*) shows that despite reported limited growth in the goods producing sector, output is projected to rival that of the service sector. A survey by NAM (*National Association of Manufacturers/March 2006*) found that 53% of manufacturers plan to increase employment in 2006 and 47% will hire skilled workers for production jobs. In a survey **among Macomb County businesses**, 35% of manufacturers surveyed say they will be adding employees over the next 3 years, while an additional 25% project that they will maintain current employee levels.

According to the U.S. Department of Labor, in the Goods Producing sector, industries with the highest projections for employment growth will be:

1. **Transportation Equipment manufacturing**
 - Motor Vehicle Manufacturing: Processes and materials that improve vehicle quality, extend longevity and safety and environmental regulations (lightweight materials, improved aerodynamics, engine friction reduction, unit body construction, improved pumps, low rolling resistance tires)
 - Aerospace products and parts (aircraft, guided missiles, space vehicles)
2. **Computer and Electronics manufacturing**
3. **Plastics and Rubber Products manufacturing**
4. **Miscellaneous manufacturing**

3.1.1. Construction Sector Outlook

Modest growth is projected for the **Construction** sector specifically in:

1. Non-residential Construction: delayed replacement and remodeling of industrial plants
2. Healthcare related: Nursing homes, extended care, high tech medical treatment facilities



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3.1.1. Service Sector Outlook

Through 2014, some of the fastest growing sectors for employment will be in the **service** industries.

Professional and business services, and **Healthcare and social assistance** sectors will account for *almost half* of new jobs in the service sector between 2004 and 2014.

Within key service sectors, identified sub-sectors are highlighted:

1. Professional and Business Services

- Temporary staffing services to address **flexible work schedules** and **match business skills to market needs**
- **Computer systems** and design related services
- **Consulting** for economic development/growing **business complexity**

2. Healthcare

- Manufacturing, services and construction for **aging population, disabled**
- Construction of **residential care facilities**
- **Outpatient/ambulatory services**, centers

3. Information:

- Software publishing/consulting that facilitates e-commerce and ensures **secure systems of communications**
- Internet/Information services to upgrade networks to improve performance and **security**

4. Wholesale

- **Supply and distribution services/facilities** impacted by Internet, e-commerce and new radio frequency identification technology



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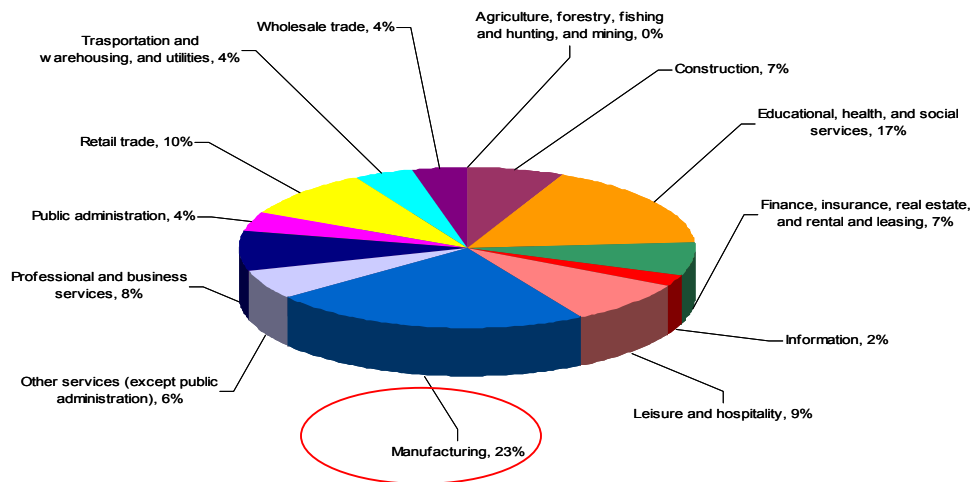
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3.1.2. Mapping Macomb Base

Economic Concentration

A profile of the distribution of employment within Macomb County as compared to Wayne and Oakland confirms a higher than average presence of “manufacturing” related companies; making up approximately 23% of total Macomb County employment.

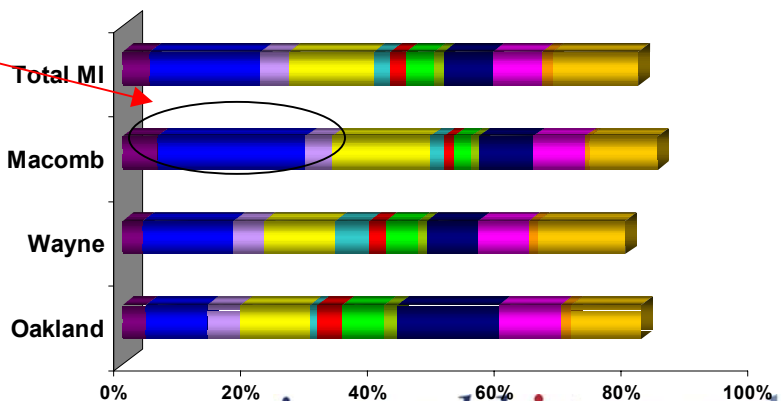
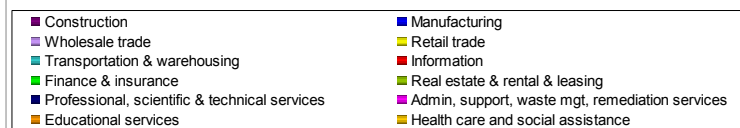
Employment by Industry in Macomb County, 2004



Source: U.S. Census Bureau, 2004 American Community Survey

The graph to the right reinforces the strength of the “manufacturing” base as compared to Oakland and Wayne counties which have more evenly distributed employee bases across multiple industry segments.

% Distribution of Employment in Macomb County vs. other regions



Source: U.S. Census Bureau, U.S. County Business Patterns 2003

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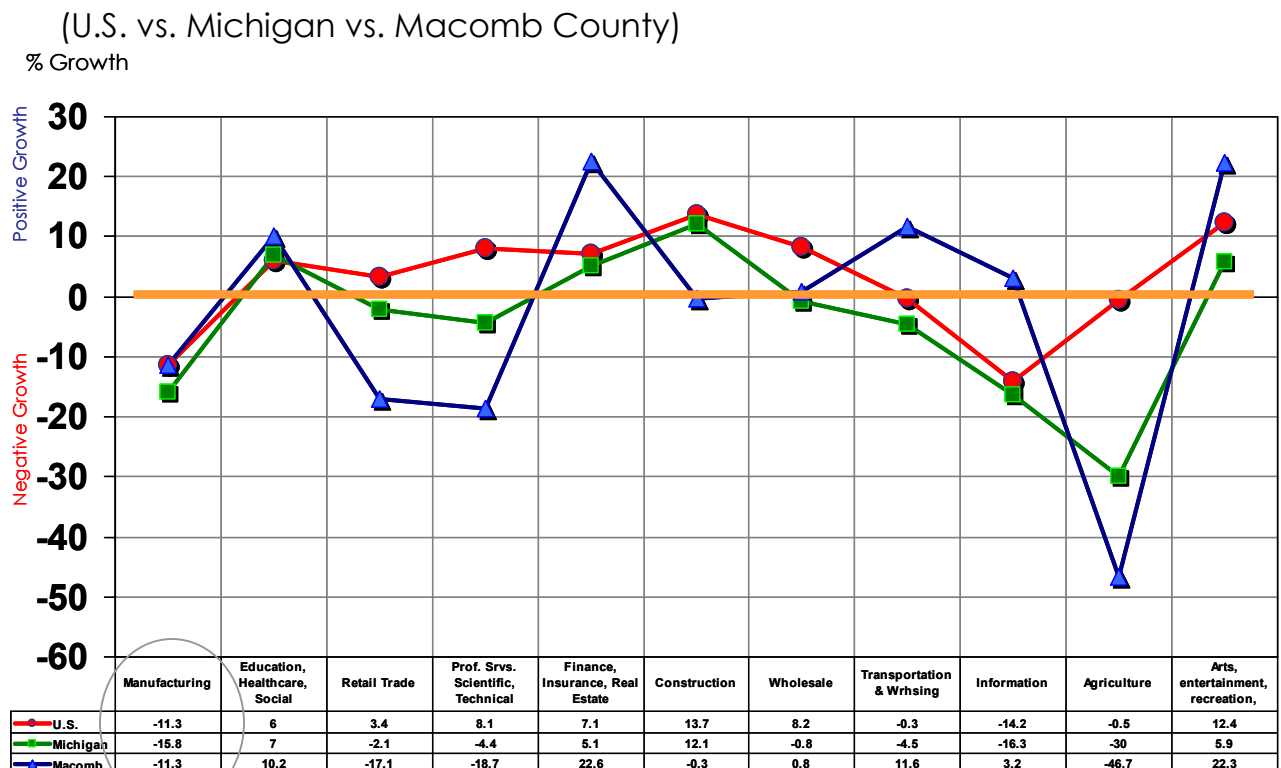
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Comparative Economic Growth Trends

Comparing Macomb County **manufacturing employment trends** to those of Michigan and the U.S. overall, reflect that from 2000 to 2004, Macomb County actually experienced less of a decline than Michigan overall; -11.3% as compared to -15.3% respectively.

Looking at other industry categories in the graph below, Macomb (blue line) experienced greater declines on average compared to Michigan (green line) in: Agriculture, Construction, Retail Trade and Professional, Scientific & Technical services while proved to hold stronger than the Michigan average in Finance/Insurance/Real Estate, Transportation/Warehousing & Utilities, and Information.

Comparison of Employment growth by Industry Sector: 2000-2004



Source: U.S. Census Bureau/U.S. Department of Labor



3.1.3. Mapping Market Need

Globalization is forcing states to focus on what they do best. Production requiring higher skill levels and an educated workforce are at the forefront of decisions by companies relocating and expanding. Nationally, CEO's surveyed in March 2006 were asked what criteria were most important when ranking states as a "place to do business." The top 7 most important issues in choosing where to do business were:

1. Workforce (Skills, quality, training)
2. Labor costs (including wages, Healthcare, Workers' Comp.)
3. Taxes
4. Regulation
5. Infrastructure
6. Quality of Life
7. Political Environment

The U.S. National Summit on Competitiveness (12/05) identified key **funding areas** deemed critical to U.S. innovation – increased funding resources for **long-term research** (physical sciences, engineering, math), sustained funding for **national technology challenges** that ensure security and economic leadership (**nanotechnology, high performance computing, alternative energy**) and incentives for **creation of public/private partnerships between education and the private sector.**

Consistent with those national initiatives, **manufacturing companies globally in seeking new locations are paying more attention to**

- Proximity to institutions of higher learning;
- Customized training programs;
- Availability of incentives; and
- Keeping workers up to speed with the latest technologies.

Nationally, while the East North Central region remains the primary recipient of total new and expansion manufacturing projects (2005), the South Atlantic leads in "new manufacturing projects" with North Carolina as the primary recipient. In the Midwest, **Ohio poses strong challenges to Michigan** as they rank #1 for both total manufacturing projects, new and expansion (2005) as well as total NEW manufacturing as reflected in the following table.



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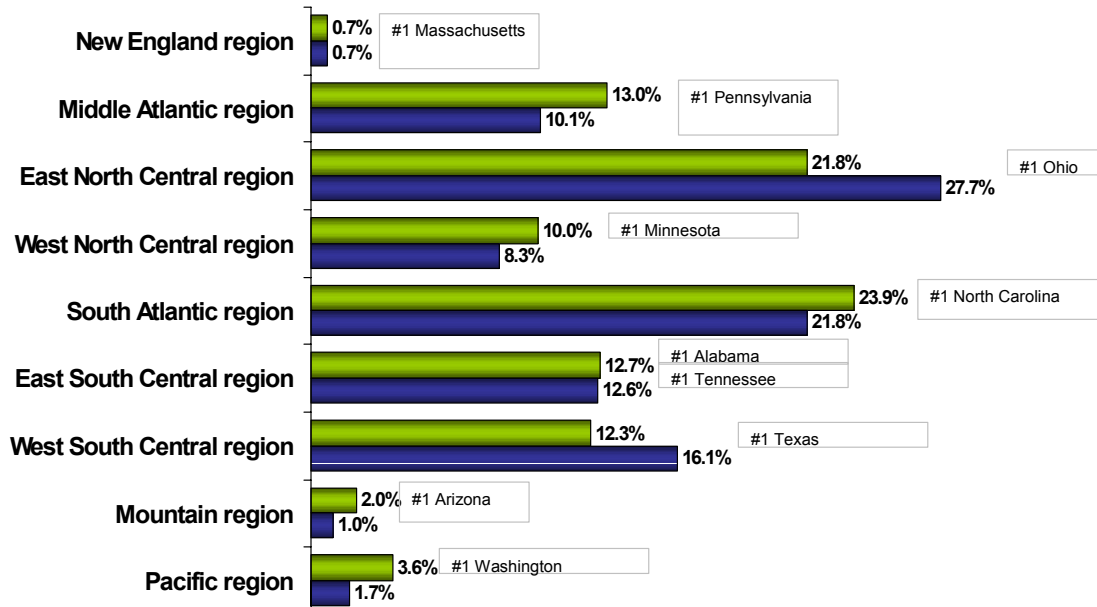
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Geographic Migration of Projects in U.S.

■ New Mfg. as a % of total U.S. ■ Total facilities as a % of total U.S.

#1 State in the Region for Growth based on % of total projects



Geographic Migration of Projects in U.S.

- Michigan remains a strong state for business attraction & expansion
- Southern states & Ohio posing strong challenges

Top 10 Total Projects 2005		Top 10 Total manufacturing (NEW & EXPANSION)		Top 10 Total NEW manufacturing		Top 10 Total Mfg. (OTHER facilities)	
1.	Texas	1.	Ohio	1.	Ohio	1.	Texas
2.	Ohio	2.	Michigan	2.	North Carolina	2.	Illinois
3.	Illinois	3.	Tennessee	3.	Texas	3.	Michigan
4.	Michigan	4.	North Carolina	4.	Pennsylvania	4.	Ohio
5.	North Carolina	5.	Texas	5.	Georgia	5.	North Carolina
6.	Pennsylvania	6.	Kentucky	6.	Michigan	6.	Carolina
7.	New York	7.	Pennsylvania	7.	New York	7.	New York
8.	Tennessee	8.	Alabama	8.	Illinois	8.	Pennsylvania
9.	Virginia	9.	New York	9.	Alabama	9.	Virginia
10.	Georgia	10.	Georgia	10.	Kentucky	10.	Indiana
							Florida

*Other facilities includes offices, headquarters, distribution centers, R&D, mixed use facilities & hotels

Source: Conway Data Inc.'s New Plant Database/Site Selection On-line, March 2006



4. Aligning Macomb with Market Needs

In line with the key areas identified as drivers of site selection, internal interviews with Macomb business and government identified perceived “strengths” and “weaknesses” of Macomb in those areas:

4.1.1. Perceived Strengths and Weaknesses

Driver #1: Workforce quality (proximity to institutions of higher learning, training, keeping workers up to date on latest technologies)

Perceived Macomb Strengths	Perceived Macomb Challenges
✓ Availability of skilled manufacturing talent (engineers, R&D, Assembly) - 73,000 workers skilled in manufacturing methods, technologies, and processes	✗ Lower than average educational levels (fewer college degrees as compared to region) ✗ Ability to retain higher educated fields (scientists, engineers) ✗ Limited embracing of new technologies and processes/ideas
✓ Growing population/longevity of community residents/low migration/diversity	✗ Aging population/image of “old” community/youth leaving to go elsewhere
✓ Availability of college/training for technical and support ✓ Commitment of MCC to create partnerships ✓ Proximity in the region to other 4 year and technical training schools	✗ Question of having a 4 year college in County ✗ Limited marketing of partnerships with extensions
✓ Increasing efforts focus by business and education on partnerships/partnerships with other educational institutions	✗ Promotion/cross-selling to and attraction from area schools

Driver #2: Labor costs (including wages, Healthcare, Workers’ Comp.)

Perceived Macomb Strengths	Perceived Macomb Challenges
✓ Skilled occupations offering high wages ✓ Specialty skills in manufacturing not found elsewhere	✗ Perception of high cost of labor due to unionization ✗ Loss of manufacturing to Southern states due to perceptions of lower wages by companies



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Driver #3: Taxes/Regulations

Perceived Macomb Strengths	Perceived Macomb Challenges
<ul style="list-style-type: none">✓ Low taxes (2nd lowest in Michigan)✓ Land availability and cost of land as compared to neighboring areas✓ Commercial lending program	<ul style="list-style-type: none">✗ Unawareness of taxes, cost of land, cost of labor relative to other areas✗ SBT on small business representing large base of Macomb business community✗ Proactive pursuit by business of grants/funding opps. for training, workforce development

Driver #4: Business Infrastructure

Perceived Macomb Strengths	Perceived Macomb Challenges
<ul style="list-style-type: none">✓ Automotive image to external markets✓ Proximity to automotive companies and suppliers✓ Proximity to Fortune 500 in other counties	<ul style="list-style-type: none">✗ Negative perceptions of manufacturing as only automotive production related✗ Susceptible to downturns in traditional automotive industry segments✗ Limited knowledge of diversification of mfg.✗ Unawareness of /limited public/private business partnerships for programs or business initiatives
<ul style="list-style-type: none">✓ Geographic proximity to Canada✓ Access to major interstates (75/94)✓ Large presence of Defense sector as a feeder (TACOM/Selfridge)	<ul style="list-style-type: none">✗ Airport access for investors, customers of companies✗ Not enough capitalization on Defense sector and transfer of technology to other areas
<ul style="list-style-type: none">✓ Strong player in research & development✓ Strong player in closing patents	<ul style="list-style-type: none">✗ Limited media attention on specific advances and technologies to outside markets✗ Limited attention on technology transfer to other areas✗ Limited evaluation of new markets, export opportunities



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Driver #5: Quality of Life

Perceived Macomb Strengths	Perceived Macomb Challenges
<ul style="list-style-type: none">✓ Diversity of housing/cost of housing✓ Low cost of living✓ Lake access/recreational facilities✓ Low crime rates✓ Access to high quality healthcare✓ Strong diverse communities (urban, rural, suburban)	<ul style="list-style-type: none">✗ Perceptual issues to outside – old, blue collar, non-progressive, rural, lower educated✗ Traffic congestion✗ Unawareness of/ limited number and marketing of communities with “downtowns” to attract tourists, youth✗ Marketing/advancement of proximity to Lake✗ Common zoning vision throughout County

Driver #6: Political Environment

Perceived Macomb Strengths	Perceived Macomb Challenges
<ul style="list-style-type: none">✓ Willingness to collaborate with business/assist businesses✓ Local governments open to economic growth✓ Strong support for small business	<ul style="list-style-type: none">✗ Dedicated funds for economic development initiatives (marketing, trade missions, staff)✗ Collaboration with regional efforts✗ Understanding of the needs of Macomb business
<ul style="list-style-type: none">✓ Relationships with educational partners✓ Strong focus on expanding business initiatives	<ul style="list-style-type: none">✗ Multiple County organizations working on same issue✗ Synergy and collaboration to limit duplication
<ul style="list-style-type: none">✓ Increasing perception of opportunities through regional cooperation✓ Support for development of technology	<ul style="list-style-type: none">✗ Proactive County “brand” to compete locally, regionally and nationally✗ Awareness of new opportunities and threats of increasing competition for business

Source: 2006 1:1 interviews with Macomb County business and government personnel/Macomb County Communications Plan/Branding Focus Groups/Gyro Communications, 2005.



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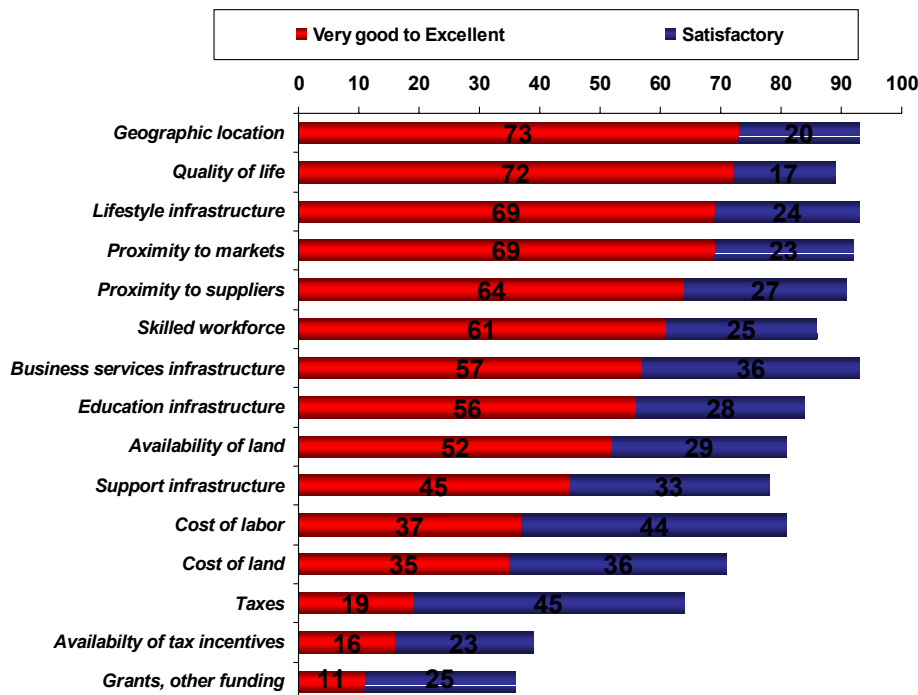
4.1.2. Validation: Current Business Attitudes Toward Macomb

The survey of Macomb County business (Mar. 2006) identified key “drivers” in their decision to choose Macomb:

1. **Geographic proximity**
2. **Proximity to markets and customers**
3. **Availability/cost of land/buildings**
4. **Skilled workforce (only mentioned by manufacturing segment)**

Macomb received its **highest ratings** in geographic location, quality of life, lifestyle infrastructure, proximity to markets and proximity to suppliers. **Lowest ratings** were given for tax incentives, grants/funding, taxes, cost of land and cost of labor. When asked “What industry do you feel would do well in Macomb County,” respondents to the survey identified: Medical/medical device manufacturing, general manufacturing, and hi-tech telecommunications.

How would you rate Macomb as
a place to do business?



Highest marks:

Geographic location
Quality of life
Lifestyle infrastructure
Proximity to markets
Proximity to suppliers

Lowest marks:

Grants, funding
Tax incentives
Taxes
Cost of land
Cost of labor

Source: Intellitrends LLC, Macomb County Business Insight Study, 03/06



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4.1.3. A Common Vision for Economic Growth

It is important to note the synergies and common vision that exist between the U.S. Department of Labor's projected "high employment growth industries", Key Industries identified by the MEDC and Technology Clusters advanced by Automation Alley initiatives. Common focus areas provide opportunities to collaborate, understand broad industry issues (instead of unique local issues), leverage government grants/funding, and develop educational initiatives that target and draw on unique skills that reside in each county.

Six key clusters are identified by using NAICS groupings. These six specific technology driven industry clusters are identified as those that leverage technology in production through advanced production processes and reliance on knowledge workers.

1. **Advanced Manufacturing**
 2. **Advanced Transportation (Automotive/Aerospace)**
 3. **Bio-Technology/Life Sciences**
- Two additional sectors, not defined by traditional industry data:
 1. **Homeland Security**
 2. **Alternative Energy**

		U.S. Dept. of Labor: High Employment Growth Industries	Key Industries in Michigan (MEDC)	Automation Alley Technology Clusters
		Advanced Manufacturing	Advanced Manufacturing	Advanced Manufacturing
		Aerospace	Advanced Automotive	Advanced Automotive/
		Automotive	Plastics	Chemical & Materials
		Biotechnology	Life Sciences	Info Technology
		Construction	Chemicals & Materials	Life Sciences (Biotech, Pharma)
		Alternative Energy	Agriculture	Homeland Security
		Financial	Food Processing	Alternative Energy
		Healthcare	Homeland Security	
		Homeland Security		
		Info Technology		
		Geospatial		
		Transportation (RR, bus workers)		



4.1.4. Macomb Presence in Emerging Sectors

Total employment in the five (5) primary defined clusters accounts for 14% of total Michigan employment, 15% of employment in the 8 county region and **16% of total Macomb employment.**

Percentage employment concentration within each of the sectors is as follows:

1. Advanced Manufacturing

- ✓ 8 county region as a % of total Michigan sector employment: 43%
- ✓ **Macomb County contribution** as a % of the 8 county region: 23%
 - 40% of Macomb employment in this sector is in “machinery manufacturing”
 - 35% is in Fabricated metal products

2. Advanced Automotive

- ✓ 8 county region as a % of total Michigan sector employment: 62%
- ✓ **Macomb County contribution** as a % of the 8 county region: 19%
 - 70% of Macomb employment in this sector is in Motor Vehicle Parts manufacturing

3. Chemicals & Materials

- ✓ 8 county region as a % of total Michigan sector employment: 48%
- ✓ **Macomb County contribution** as a % of the 8 county region: 15%
 - Majority of Macomb employment in this sector is in “paint, coating, and adhesive manufacturing”

4. Bio-Technology/Life Sciences

- ✓ 8 county region as a % of total Michigan sector employment: 60%
- ✓ **Macomb County contribution** as a % of the 8 county region: 9%

5. Information Technology

- ✓ 8 county region as a % of total Michigan sector employment: 75%
- ✓ **Macomb County contribution** as a % of the 8 county region: 5%



5. Marketing Macomb

Regional collaboration has been cited as a primary strategy for many organizations. According to the 2005 ICMA survey of municipalities and counties – 98% want to attract new business. The primary activities that they are embarking on are partnering with non-governmental organizations, having local government representatives proactively calling on companies and partnering with other local governments. Only one in four government organizations implementing economic development activities say that they have “special technology zones.”

In business attraction efforts by other government organizations, the **primary barriers** considered by municipalities and county organizations today are availability of land, cost of land and lack of building availability. Factors considered **most advantageous** to business attraction are quality of life, political support and cost of labor. To compete, **local organizations are increasingly dedicating funds.** The average budget being dedicated to economic development is \$753,160. The primary promotional activities being used to attract business are a website (cited by 86%), working with local Chambers and talking about “high quality of life” (75%).

Among those organizations **experiencing strong success** in their business attraction and economic development efforts, common tools being used include:

1. Workforce training initiatives and the ability to quantify and provide a trained work force in specialized skill set areas

In 2004, the U.S. Department of Labor committed more than \$43 million to address the workforce needs of **Advanced Manufacturing**, based on feedback from industry leaders, educators and the public. Key focus areas to satisfy and meet the challenges of **Advanced Manufacturing**:

1. Attracting and retaining youth:
 - The current K-12 educational system does not adequately educate youth about careers or impart required skills that employers need for manufacturing skills.
 - A repositioning of the “image” of manufacturing is needed to dispel negative images of manufacturing careers (i.e., “dirty”, “low pay”, “declining”, “going off-shore”) to attract an increased number of higher educated youth.



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In 2003, Michigan launched a statewide campaign as part of the national “Cool Cities” campaign to build vibrant, energetic cities that attract jobs, young people and opportunity to the state. Grants in 2006 include:

- Cool Cities Neighborhoods in Progress
- Cool Cities Michigan Main Street
- Cool Cities Blueprints for Michigan’s Downtowns
- Cool Cities Blueprints for Michigan’s Neighborhoods

Participating Macomb communities include Warren, Mt. Clemens, Eastpointe and Center Line.

2. Proactively address demographic shifts (Retirement of baby boomers, integrating immigrants, utilizing displaced workers)
 - Educational emphasis on basic/soft skill areas (reading, writing, math, problem solving, communication, critical thinking, teamwork, computer literacy, flexibility/adaptability).
3. Workforce Training
 - Employers will need workers who are continually focused on improving processes and products
 - Meeting “articulated” business needs with training initiatives
 - Increasing the skill-sets of incumbent workers for new technologies and processes:
 - ✓ Production workers (set-up, operate, improve manufacturing processes and schedules)
 - ✓ Process Development (develop, implement & improve the manufacturing process)
 - ✓ Quality Assurance (manufacturing systems that meet quality requirements defined by business and customers)
 - ✓ Health, Safety and Environmental Assurance (meeting HS&E requirements)
 - ✓ Equipment Maintenance, Installation & Repair workers
 - ✓ Logistics & Inventory control (for movement & storage of materials and products in the manufacturing system)



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2. Partnerships: The ability to bring together diverse groups to market and promote a geographical area rather than stand-alone cities and counties. Regionally, key organizations working on R&D initiatives include:

- Tank Automotive Research, Development and Engineering Center/National Automotive Center
- 11 Smart Zones and 7 Business Accelerators
- NextEnergy
- Core Technology Alliance
- Van Andel Institute
- Biosciences Research & Commercialization Center
- Center for Automotive Research
- Center for Applied Research and Technology - CMU
- Michigan Universities Commercialization Initiative
- Keweenaw Research Center - MTU
- Life Sciences Institute - U of M
- National Superconducting Cyclotron Lab - MSU
- Smart Sensor and Integrated Microsystems Lab - Wayne State
- WIMS Engineering Research Center

3. State of the art website

- Targeting of corporate site selectors and consultants
- On-line databases of available buildings and sites



6. Sector Profiles

6.1.1. Advanced Manufacturing

➡ Target Assessment: **High as a Primary Target**

- Outlook

Advanced manufacturing technologies (AMTs) involve new manufacturing techniques and machines combined with the application of information technology, micro electronics and new organizational practices within the manufacturing sector.

Rising shipping costs, particularly for sectors that must transport massive machines, will see many firms investing in plants closer to the customer and finding the right work force will play an equally important role. Validating the choice of Macomb are the findings from the business survey of Macomb based manufacturing businesses (March 2006) which found that the top three most important factors that influenced their choice of Macomb as a place to do business were **geographic location, proximity to markets and skilled workforce.**

Manufacturers now need highly trained workers and according to recent moves and expansions (Site Selection) decisions could hinge on the perceived state of the locality's commitment to work force training. A 2003 survey of U.S. manufacturing employers found that 80% of respondents said they had **a serious problem finding qualified candidates for the highly technical world of modern manufacturing (National Association of Manufacturing).** Macomb based manufacturing businesses would agree. While 35% said that over the next three years they will "add employees", only one-third felt that the required skills were strongly available in Macomb's current employee skills asset base. Specific skills being required were listed as **1.) Technology/IT (CAD, Network, Programming, Tech Support, 2.) Operations/Planning (management, financial, accounting, marketing) and 3.) Engineering.**



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- Opportunity

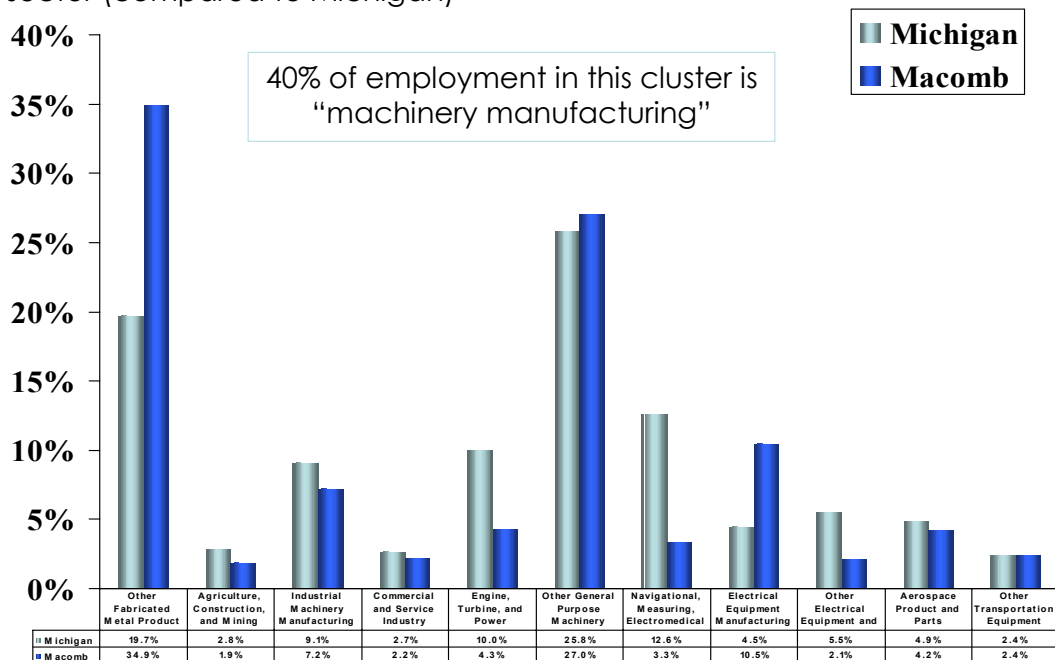
Macomb has opportunity to leverage its strength in the sector of **Advanced Manufacturing**. The traditional “manufacturing” sector could be leveraged considering that the top 3 manufacturing sub-sectors which make up 77% of manufacturing employment are:

- Transportation Equipment: 42%
- Machinery Manufacturing: 20%
- Fabricated Metal Manufacturing: 15%

Regrouping of manufacturing businesses under “**Advanced Manufacturing**” accounts for 8% of total Macomb employment with Macomb accounting for 23% of total **Advanced Manufacturing** employment in the 8 county region.

Advanced Manufacturing Employment 1998 - 2003

Advanced Manufacturing employment in Macomb - % distribution within sector (compared to Michigan)



Source: 2003 County Business Patterns, U.S. Census Bureau/Anderson Economic Group, Automation Alley's First Annual Technology Industry Report, 2005



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- Sector Representatives

Some of the top employers in the cluster of **Advanced Manufacturing** are shown below. Combined, these 12 companies and their locations account for 22% of employment in **Advanced Manufacturing**.

Company	Location	# Empl.	Category
General Motors Corp	Warren	1000	333999 All Other General Purpose Machinery Mfg
Mold-Rite Tool Inc	Fraser	650	333511 Industrial Mold Mfg
Craft Industries Inc	Shelby Township	500	333999 All Other General Purpose Machinery Mfg
Motor City Stampings Inc	Chesterfield	450	332116 Metal Stamping
Michigan Production Machining	Macomb	300	332710 Machine Shops
MAG Industrial Automation	Warren	300	333922 Conveyor & Conveying Equipment Mfg
Paslin Co	Warren	300	333992 Welding & Soldering Equipment Mfg
Kuka Flexible Production Sysys	Sterling Heights	300	333999 All Other General Purpose Machinery Mfg
Utica Enterprises Inc	Shelby Township	300	333515 Cutting Tool & Machine Tool Accessory Mfg
Noble International Ltd	Warren	294	332116 Metal Stamping

- Sub-Sector Targets

- ✓ Flexible manufacturing cells or systems
- ✓ Robotics
- ✓ High-speed machining
- ✓ Supervisory control and data acquisition (SCADA)
- ✓ Automated sensor-based inspection/testing systems
- ✓ Automated vision systems
- ✓ Lasers used in material processing
- ✓ Distributed control systems
- ✓ Rapid prototyping systems
- ✓ Computer-aided design/engineering software (CAD/CAE)
- ✓ Programmable logic controllers (PLCs)
- ✓ Use of inspection data in manufacturing control
- ✓ MRP or Enterprise Resource Planning (ERP) software
- ✓ Automated parts identification (i.e. bar coding)
- ✓ Modeling or simulation techniques



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- Sub-sector Representatives

Within the **Advanced Manufacturing cluster** in Macomb County, approximately 35% is in “Other Fabricated metal product manufacturing” with an additional 40% in “machinery manufacturing.”

Within “ADVANCED Manufacturing”	Representative Companies, Location, # empl.		
3331, 3332, 3333, 3339 Machinery Mfg. 333131 Mining Machinery & Equipment Mfg 333220 Plastics & Rubber Industry Machinery Mfg 333319 Other Commercial & Service Industry Machinery Mfg 333999 All Other General Purpose Machinery Mfg	General Motors Corp Craft Industries Inc MAG Industrial Automation Paslin Co Kuka Flexible Production Sys Acco Systems Inc Norgren Automotive Inc Cincinnati Lamb Savair Inc Attica Hydraulic Exchange Corp	Warren Shelby Township Warren Warren Sterling Heights Warren Clinton Township Warren Chesterfield Township Chesterfield Township	1000 500 300 300 300 200 200 150 130 100
3329 – Fabricated Metal Product Mfg. 332912 Fluid Power Valve & Hose Fitting Mfg 332996 Fabricated Pipe & Pipe Fitting Mfg 332997 Industrial Pattern Mfg 332999 All Other Misc Fabricated Metal Prdt Mfg	Piper Industries Inc P C S Co Beaver Industries Smith Brothers Tool Troy Tube & Manufacturing Co Carbide Technologies Inc	Roseville Fraser Sterling Heights Shelby Township Chesterfield Township Fraser	100 94 80 55 50 50
3353 – Electrical Equipment Mfg. 335311 Power, Distribution & Specialty Transformer Mfg 335312 Motor & Generator Mfg 335313 Switchgear & Switchboard Apparatus Mfg 335314 Relay & Industrial Control Mfg	K-R Automation Corp Control Technique Inc Indicon Corp Kuka Robotics Corp A & C Electric Co Enerex Hydro-Logic Inc	Warren Sterling Heights Sterling Heights Sterling Heights Mount Clemens Harrison Township Warren	120 100 80 45 35 35 35
3336 – Engine, Turbine & Power Transmission Equip. Mfg. 333612 Speed Changer, Indl High-Speed Drive & Gear Mfg 333613 Mechanical Power Transmission Equipment Mfg	Triumph Gear Systems - Macomb Warner Electric Holdings Inc Masterline Design & Mfg Schwartz Boring Co	Macomb Township Warren Harrison Township Warren	175 90 28 21



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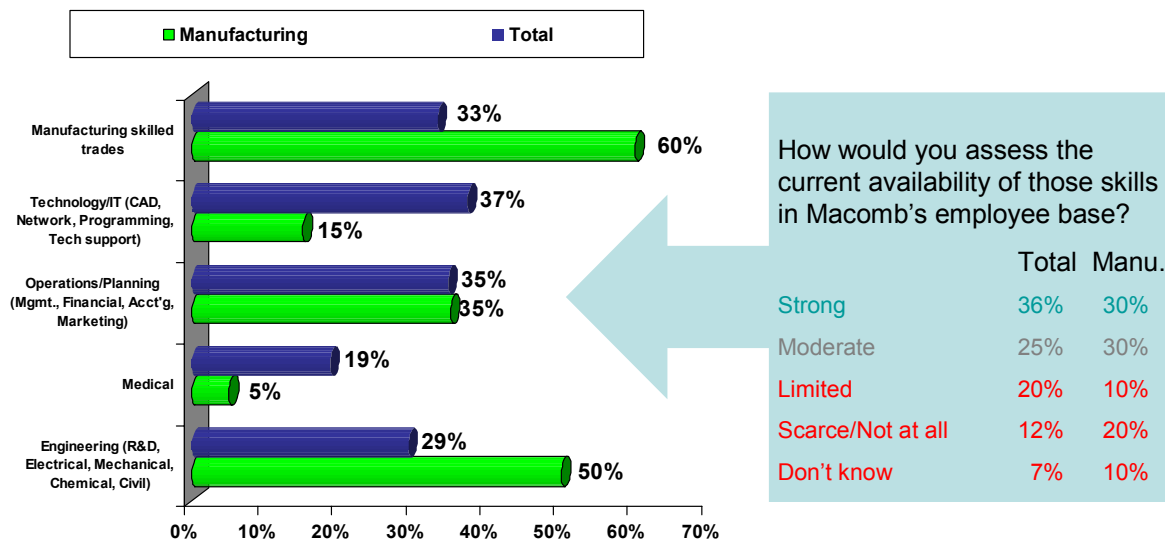
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- Challenges

Locally, 60% percent of Macomb manufacturing companies surveyed (March 2006) anticipated needing “manufacturing skilled trade” and 50% anticipate needing engineering skills for continued growth. However, only 30% of manufacturing businesses surveyed assess the “current availability” of required skills in Macomb’s employee base as “strong.” Forty percent of manufacturing companies surveyed described the availability as “limited” or they simply didn’t know.

What are the primary skill areas you anticipate needing for continued growth?



Source: Intellitrends LLC, Macomb County Business Insight Study, 03/06

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6.1.2. Advanced Automotive

➡ Target Assessment: **High as a Primary Target**

- Outlook

The Automotive Industry continues to be one of the primary and most important industries both in the U.S. and worldwide. It is estimated that for every worker directly employed by an automaker, it creates nearly 7 new jobs. (*Alliance of Automobile Manufacturers*). It is pin-pointed as one of the President's high growth employment industries with employment projected to rise more rapidly in firms that manufacture motor vehicle parts, bodies and trailers than in firms that make complete vehicles.

Advanced Automotive has been identified as the new sector, defining an industry not by what is made but how it is made. This new advanced automotive sector is defined by hundreds of advanced technology initiatives in energy, safety and materials that improve vehicle quality, safety and extend longevity. The graphs below reflect market penetration of advanced technologies in new vehicles currently and projections for those technologies by 2030.

Figure 17. Market penetration of advanced technologies in new cars, 2004 and 2030 (percent of total new cars sold)

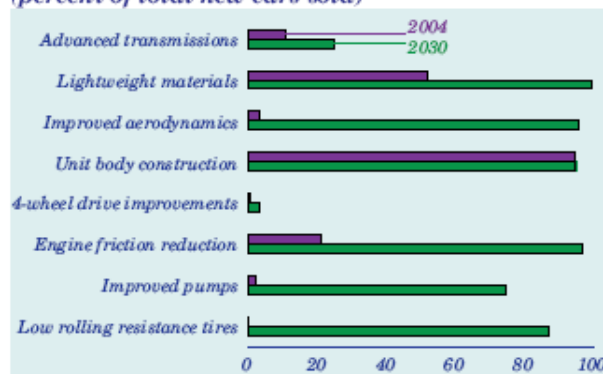


Figure 18. Market penetration of advanced technologies in new light trucks, 2004 and 2030 (percent of total new light trucks sold)





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- Opportunity

Macomb has opportunity to leverage its strength in this area. Employment in “Transportation Equipment Manufacturing” currently makes up 47% of total manufacturing employment in Macomb County; 12% of total Macomb employment.

Current employment in industries making up **Advanced Automotive** still accounts for 12% of total Macomb employment and 19% of total **Advanced Automotive** employment in the 8 county region.

- Sector Representatives

Companies within Macomb that would account for the largest employment within the **Advanced Automotive** cluster are:

Company	Location	# Empl.	Category
DaimlerChrysler Corp	Warren	7000	336111 Automobile Mfg
Automotive Components Holdings	Sterling Heights	4000	336350 Motor Vehicle Transmission & Power Train Parts Mfg
DaimlerChrysler Corp	Sterling Heights	3000	336370 Motor Vehicle Metal Stamping
General Motors Corp	Warren	3000	336399 All Other Motor Vehicle Parts Mfg
DaimlerChrysler Corp	Sterling Heights	2500	336111 Automobile Mfg
Ford Motor Co	Sterling Heights	2157	336330 Motor Vehicle Steering & Suspension Cmpnts (Exc Spring) Mfg
DaimlerChrysler Corp	Warren	2000	336370 Motor Vehicle Metal Stamping
Ford Motor Co	Romeo	1584	336312 Gasoline Engine & Engine Parts Mfg
Fisher & Co Inc	St. Clair Shores	800	336399 All Other Motor Vehicle Parts Mfg

Combined, these 9 locations account for 73% of employment in Advanced Automotive in Macomb.



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- Sub-Sector Targets

Targeted companies or companies that offer advanced technologies for applicability in the following areas:

Body & Exterior

- ✓ **Lightweight materials**
- ✓ **Unit body construction**
- ✓ **Glass** (Advanced Laminated safety glass, advanced tinted)
- ✓ **Paint/Coatings**
- ✓ **Lighting** Adaptive headlamps, headlamp cleaning systems, high performance halogen & Xenon lighting, LED lighting

Power train

- ✓ **Enhanced fuel economy:** Fuel cell, Hybrid electric, Hydrogen fueled
- ✓ **Advanced batteries**
- ✓ **Emissions control**

Ride & handling

- ✓ **Brake & Gas** (adjustable pedals, park & brake by wire, four wheel steering, steer by wire)
- ✓ **Low rolling resistance tires** (Advanced tire pressure monitoring systems, airless tires, self-inflating tires, smart run-flat tires)

Safety systems

- ✓ **Sensing systems:** Child left in vehicle warning, lane departure warning & aid, occupant sensing for intelligent airbag deployment, Pedestrian sensing & protection, pre-crash sensing, radar enabled collision warning systems, voice/fingerprint vehicle entry systems, rear of vehicle cameras
- ✓ **Safety features:** Rollover control & protection, side airbags & electronics

Interiors

- ✓ **Seating:** (climate controlled seats – Heated & cooled, dynamic seating, pivoting seats)
- ✓ **HVAC:** (advanced air conditioning systems, Multi-zone thermo electric HVAC systems)
- ✓ **Navigation:** Automated driving software, auto parking, Intelligent navigation, real-time traffic updates, projected imaging

Telematics, Audio & Entertainment

- ✓ Electronics under the hood control everything from engine performance to braking and traction. Electronic devices such as GPS locators, cellular phones, and flat panel video displays are proliferating in the passenger compartment.

*Bluetooth connectivity, Driver recognition systems, wireless, hands-free, voice activated controls, home connectivity, satellite radio/video systems, on-board multi-media



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● Sub-Sector Representatives

Within the **Advanced Automotive cluster** in Macomb County, approximately 70% of employment is in “Motor Vehicle Parts”:

Within “MOTOR VEHICLE PARTS”		Representative Companies, Location, # empl.	
336399 All Other Motor Vehicle Parts Mfg <i>- primarily engaged in manufacturing and/or rebuilding motor vehicle parts and accessories (except motor vehicle gasoline engines and engine parts, motor vehicle electrical and electronic equipment, motor vehicle steering and suspension components, motor vehicle brake systems, motor vehicle transmission and power train parts, motor vehicle seating and interior trim, motor vehicle stampings, and motor vehicle air-conditioning systems and compressors)</i>	General Motors Corp	Warren	3000
	Fisher & Co Inc	Saint Clair Shores	800
	TRW Automotive US LLC	Sterling Heights	627
	TRW Automotive Inc	Washington	600
	US Manufacturing Corp	Warren	600
	TI Group Automotive Systems	Warren	350
	Jacobs Industries Inc	Fraser	335
	Automotive Components Holdings	Sterling Heights	300
	DaimlerChrysler Corp	Sterling Heights	3000
336370 Motor Vehicle Metal Stamping <i>- primarily engaged in manufacturing motor vehicle stampings, such as fenders, tops, body parts, trim, and molding</i>	DaimlerChrysler Corp	Warren	2000
	AZ Automotive Corp	Warren	350
	AZ Automotive Corp	Center Line	200
	Manufacturers Products Co	Warren	200
	Tesma International of America	Sterling Heights	150
	WICO Metal Products Co Inc	Warren	150
	Global Advanced Products LLC	Chesterfield	140
	Guardian Automotive Technical	Warren	140
	Inalfa SSI Roof Systems LLC	Warren	100
	Automotive Components Holdings	Sterling Heights	4000
	Transform Automotive LLC	Sterling Heights	170
336350 Motor Vehicle Transmission & Power Train Parts Mfg <i>- primarily engaged in manufacturing and/or rebuilding motor vehicle transmission and power train parts</i>	Ballantrae Corp	Warren	150
	VCST Powertrain Components Inc	Chesterfield	100
	R M Z Inc	Sterling Heights	10
	Ford Motor Co	Sterling Heights	2157
336330 Motor Vehicle Steering & Suspension Cmpnts (Exc Spring) Mfg <i>- primarily engaged in manufacturing and/or rebuilding motor vehicle steering mechanisms and suspension components</i>	Key Safety Systems Inc	Sterling Heights	550
336312 Gasoline Engine & Engine Parts Mfg <i>- primarily engaged in manufacturing and/or rebuilding gasoline motor vehicle engines and gasoline motor vehicle engine parts, excluding carburetors, pistons, piston rings, and valves.</i>	Ford Motor Co	Romeo	1584
	IMPCO Technologies Inc	Sterling Heights	39



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- Resources

- **SBIR/STTR Phase I Matching Grant:** Assistance available through the Technology Tri-Corridor
- **11 Smart Zones and 7 Business Accelerators:** Help incubate and commercialize products by using resources within these “technology clusters”
- **Center for Automotive Research (CAR):** Research in significant issues that relate to the future direction of the global auto industry
- **Michigan Manufacturing Technology Center:** Works with manufacturing businesses to ensure peak performance
- **NextEnergy:** Works with colleges and engineers to develop alternative energy curriculums to foster growth in this sector
- **Michigan Small Business & Technology Development Center:** Full range of services to assist emerging and growing technology companies
- **Michigan SmallTech Association:** Community of companies, universities and individuals involved in micro- and nanotechnology development in Michigan
- **National Center for Manufacturing Sciences:** Federal research facility that runs cooperative projects and consortia located in Ann Arbor
- **Small Business Association of Michigan**
- **Engineering and Research Center for Reconfigurable Manufacturing Systems:** Developing the science base for a new generation of manufacturing systems – CNC machines, machine tools, modular controls, robots, and lasers – that can be quickly designed, upgraded or reconfigured to provide precise production capacity
- **University of Michigan Business School:** Helps with business and strategic planning
- **MUCI (Michigan Universities Commercialization Institute):** Enhances technology transfer functions available at Michigan academic and research institutions to promote their inventions

Sources: www.michigan.org/medc/ttc/AdvancedAutomotive/ResourcesandPartners



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6.1.3. Defense

➡ Target Assessment: **High as a Primary Target**

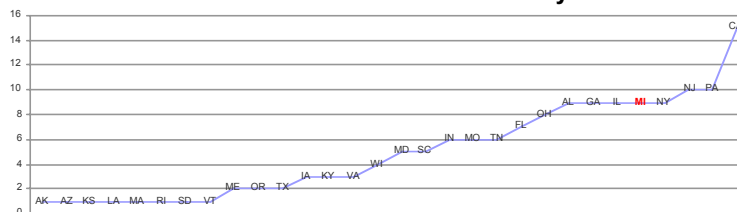
● Outlook

Advanced automotive technologies will provide an increasingly important role in the Defense Industry in the provision of technologies for reduced fuel requirements for military vehicles, including hybrid electric, and fuel cells. Funding bills through the Defense Authorization Bill Conference detail multiple funding provisions to support **development of advanced vehicle technologies** for defense application. In addition to the presence of the Defense industry itself, Macomb's manufacturing base is a strong contributor through the development of military equipment, materials and hardware. TARDEC (Tank and Automotive Research and Engineering Center and NAC (National Automotive Center) both in Warren are leaders in the research and development of advanced military technologies. Michigan is the 4th strongest state for the receipt of Defense contracts, concentrated primarily in:

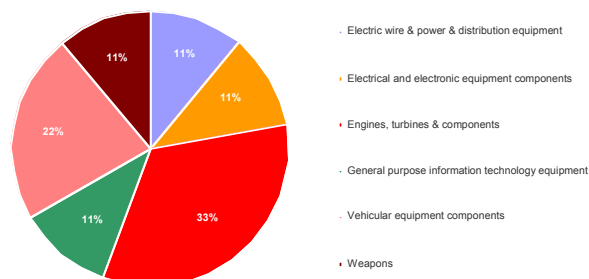
- Engines, turbines and components (Primary state for these contracts)
- Vehicular equipment components (Among primary three – Illinois, Pennsylvania)
- Electric Wire & Power & Distribution Equipment (Kentucky is primary)
- Electrical & electronic equipment components (Alabama and Kentucky are primary)
- Weapons (one of 19 states)
- General purpose IT equipment

Defense Industry: TACOM

Number of Contracts Awarded by State



Contract Types Awarded to Michigan Companies from 09/04 - 03/06



Source: TACOM LCMC Advanced Planning Briefing to Industry – Tacom2005.ppt - 26-28 Oct 05



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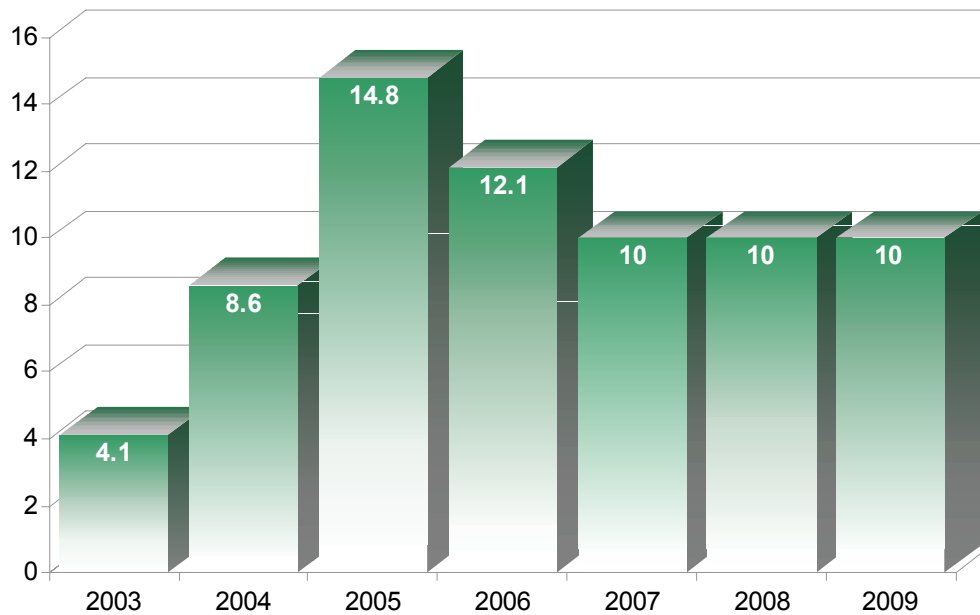
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- Opportunity

Employment in the “Defense” sector within Macomb County accounts for approximately 6% of total Macomb employment. The federal government's decision to save and expand TACOM in Warren could spur growth in related manufacturing and technology fields.

TACOM-Warren Contract Dollars (in billions) Historical and Projected by Fiscal Year



Source: TACOM LCMC Advanced Planning Briefing to Industry – Tacom2005.ppt - 26-28 Oct 05



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- **Targets**

Target sectors of the DEFENSE cluster:

Border and transportation security

Technology:

- Aircraft protection
- Electronic "no-fly" zones
- Explosion-containing luggage containers
- Explosives detection
- Fuselage ballistic armor
- Remote test site for use on U.S. government, commercial, and foreign government contracts
- Video text recognition/video OCR to passively monitor watercraft, hazardous materials tankers, and aircraft
- Security-related product development

Information analysis and infrastructure protection

- Cyber security
- Network intrusion detection
- Multilevel software security systems
- Systems engineering and integration
- Intelligence
 - Collaborative analysis
 - Aerial intelligence
 - Processing and reporting
 - Simulation suites for intelligence collection systems
- Signal processing
- Geolocation algorithms
- Computer tools, simulations, and networks
- Offensive and defensive operations programs
- Communications system design and development
- Test beds
- Terrestrial and space antenna systems

Emergency preparedness and response

- Autonomous command and control systems for first responders
- Chemical/biological agent detection
- Decontamination coatings and sprays
- Diagnostic tests
- Differential GPS laser ranging sextant for real-time target coordinates on unregistered battlefields
- Explosives detection
- GPS-based precision strike weaponry
- Ground- and foliage-penetrating radar from airborne platforms or field vehicles
- Instrumented combat training system
- Joint Training Experimentation Program (JTEP)



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- Nuclear materials detection
- Permeable blast barriers to mitigate effects from explosions
- Infrastructure collapse assessment tool for impact and blast loading
- Precision navigation
- Preclinical development services for anti-infective therapeutics and vaccines
- Reliable wireless systems
- Speech-enabled handheld language translation devices
- Support systems for covert operations and hostage rescues

Threat assessment tools and strategies

- Unexploded ordnance and mine detection and neutralization
- Wireless networking to assist small unit operations and Unmanned Combat Air Vehicle (UCAV) teams



6.1.4. Homeland Security

➡ Target Assessment: **High as a Primary Target**

- Outlook

Forecasts for global homeland security anticipate business to grow from \$40 billion in 2004 to \$180 billion by 2015. (*Homeland Security Research Corporation estimate*). Cyber security is expected to be the fastest growing sub-sector from 2005 through 2010, with an annual growth rate of 15 to 20% (*Frost & Sullivan Analysis of Current and Future U.S. Homeland Security Market*).

Approximately \$33 billion of federal funding was dedicated to Homeland Security in 2005. The specific breakdown of this budget:

- \$305.5 million – Information Technology
- \$340 million – Customs and Border Protection
- \$180 million – Travel and Security Administration
- \$326.7 million – Technology Directorate
- \$724 million – Coast Guard

Heavy emphasis is on developing new technology for four main parts of effective preparedness:

1. **Prevention: Biometrics, vaccines, intelligent systems, cargo screening systems**
2. **Detection: Bio and radiation sensors, training**
3. **Reaction: EMS equipment, communications, computer modeling**
4. **Recovery: Bioremediation, decontamination**

The majority of homeland security is performed in the private sector, with 85% of all critical infrastructures privately controlled; 35% of all U.S. companies plan to invest in and expand security programs (ASIS International Foundation Trends Report, 2005).



- Opportunity

Macomb companies already play a lead role in development and production of equipment and expertise: **improved body armor producers, concrete strengthening systems, portable tracking and communications systems and advanced detection systems.**

Strong manufacturing capabilities with defense/military employers in Macomb make Homeland Security Training a strong fit for Macomb. In addition to produced products and services, top-level FBI, Secret Service or military personnel are recruited for homeland security positions.

- Key Tools

Image & Positioning:

- Defining and marketing the breadth of opportunities available within homeland security to attract alternative labor pools (i.e., career shifters, retirees, former military, former law enforcement).
- Strengthening Macomb's link between "Defense", "Military" and "Homeland Security".
- Partnering with key stakeholders in Homeland Security (Defense, Manufacturing, Government, law enforcement, private security).

Education & Training:

- Physical security and critical infrastructure may only require a high school diploma while senior management positions may require advanced degrees.
- Information security and information systems require technical skills and computer training.
- Training for those transitioning from the law enforcement and military fields.



6.1.5. Healthcare/Social Assistance

➡ Target Assessment: **High as a Secondary Target**

- Outlook

The healthcare industry is projected to add 3.5 million jobs through 2012, representing an increase of 30%. The top 20 fastest growth occupations will be: Medical assistants, physician's assistants, home health aides, medical records and health information technicians. (*U.S. Bureau of Labor Statistics*)

Gradual aging of the population, coupled with advances in new technologies that increase life expectancies will place the **Healthcare** Sector as a dominant source of overall projected employment growth yielding 1 out of every 5 jobs by 2014. **Home Healthcare Services** will be the fastest growing employer by 2014. This sector is expected to increase at a 5.4% annual rate to 1.3 million jobs by 2014. Growth will be driven by an aging population, many of whom will have functional disabilities and will desire to maintain an independent, home-based lifestyle. **Residential Care Facilities** that provide assisted living services help the elderly maintain an independent lifestyle and avoid the more expensive nursing care facilities. Employment is projected to grow an average annual rate of 4% to 1.8 million jobs by 2014. **Private Hospitals are expected to increase at a relatively slower rate of 1.5% due to industry cost pressures and increased utilization of clinics and other alternative care sites.**

However, because of its large size, the sector will be the 7th largest source of employment growth in 2014 – adding 688,000 jobs and reaching a total employment level of 5 million. To reduce costs, hospitals are increasing providing services on an **outpatient or ambulatory basis**, which will drive the aggressive growth that is projected for offices of health practitioners and the outpatient care center portion of the ambulatory care services industry

- Opportunity

Healthcare represents 8% of Macomb employment. Within this sector, 45% of employment is in “Health care services & hospitals.” Approximately 30% is in “Nursing homes”, “Residential care”, and “Child care.” Between 2000 and 2004, healthcare grew at a faster rate in Macomb than in Michigan. The aging population in Macomb suggests that the demand for healthcare services will continue to increase at a faster than average rate for the region.



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- Sector Representatives

Organization	Location	# empl.
Mount Clemens General Hospital	Mount Clemens	2000
St John Health	Warren	1800
Mercy Mount Clemens Corp	Clinton Township	1700
St John Health	Warren	800
Bi-County Community Hospital	Warren	300
St John Hospital & Medical Ctr	Harrison Township	300
St Joseph North Urgent Care	Romeo	243

- Key Tools

Post high school programs to provide specialized training for jobs in health services. Two year programs (Certificate, Associates degree) are the minimum standard credential for occupations such as dental hygienist, or radiological technologist.

- Funding Resources

To date, \$43 million has been allocated by the U.S. government for the purpose of programs to counter healthcare labor shortages.



6.1.6. Information/Technology

➡ Target Assessment: **Moderate to high as a supporting Industry**

Information technology is the fastest growing sector in the economy. A 68% increase in output growth is projected between 2002 and 2012. (U.S. Bureau of Labor Statistics). Key drivers of demand in this sector are due to continuing advances in computer technology, demand for new computer applications and information security. Over 90% of those employed in information technology are in non-IT companies, the majority (80%) of which are small companies. (*Information Technology Association of America*). Therefore, one could consider this a “supporting industry” since employees are required to have both IT training as well as training in their respective business – healthcare, manufacturing, finance. **Software publishing** is expected to be the economy’s third fastest growing industry and the nation’s second fastest growing employer with an annual growth rate of 5.3%. Firms are expected to invest heavily in productivity enhancing software that facilitates e-commerce and ensure secure systems of communication. **Internet and other information services** will be driven by the rapid demand to upgrade networks to improve performance and security.

● Sector Representatives

Company	Location	# empl.	Category
Amphenol Corp	Fraser	200	334417 Electronic Connector Mfg
Computer Sciences Corp	Sterling Heights	170	511210 Software Publishers
Llink Technologies Inc	Romeo	107	541512 Computer Systems Design Services
Electronic Data Systems Corp	Warren	100	518210 Data Processing, Hosting & Related Services
Techshop USA	Shelby Township	75	541512 Computer Systems Design Services
Madison Electric Co	Fraser	75	334417 Electronic Connector Mfg
Anjani Etech Solutions Inc	Sterling Heights	60	541512 Computer Systems Design Services
Audio Sentry Corp	Fraser	50	334290 Other Communications Equipment Mfg
Electrivers Inc	Fraser	50	334417 Electronic Connector Mfg
Southern Bell Communication	Warren	50	517310 Telecommunications Resellers



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- Key Tools

In terms of workforce issues, IT workers need training to continually update skills. According to a May 2000 report by the Urban Institute, **community colleges** plays an important role in offering training to both new workers as well as skills retraining for those displaced from other fields.

- Funding Resources

To date, \$3 million has been allocated by the U.S. government for the purpose of programs to support business, education and workforce development partnerships to develop innovative approaches that address needs in Information Technology.



6.1.7. Finance/Insurance

➡ Target Assessment: **High as a Retention Target**

- Outlook

The financial industry, including banking, security/commodities and insurance is projected to grow at a rate of 1.2% annually through 2012. (*Monthly Labor Review*).

Employment opportunities in the financial services sector through 2012 are expected to increase primarily in **personal financial advisors (34%), financial analysts (19%), and credit analysts (19%)**. (*U.S. Bureau of Labor Statistics*). Employment growth is also anticipated in **management and professional jobs, customer service representatives, securities & financial sales representatives**. Specific areas of growth opportunity will be in the medical services and health insurance fields.

- Opportunity

Within Macomb, the Finance sector accounts for approximately 7% of total employment. However, growth from 2000 through 2004 averaged 23% as compared to only 5% in Michigan and 7% nationally.

Targeting of the healthcare field could spur additional business growth in the Financial sector for health insurance service companies. Medical services and health insurance within Insurance are predicted to grow the most in the next decade. As insurance providers retire/diversify, more opportunity will be available for entry level workers.

- Key Tools

Office, administrative, bank tellers, customer service representatives typically require only a high school diploma or GED, but with growing emphasis on math and interpersonal skills.

Financial services occupations will require college degrees. Training and offered courses in finance, accounting, economics, and marketing provide the required preparation.



6.1.8. Bio-Technology

➡ Target Assessment: **Low**

U.S. Employment in Bio-technology related companies is expected to grow substantially to 2012. Growth of companies in this field has been aggressive averaging 12.3% annually. Key employment positions in demand will be biological technicians and biological scientists. Site-selection of current companies hinges highly on skilled workforce. Bioscience firms need “scientists at the top” with advanced degrees in basic sciences like chemistry, biology, and physics. While companies will also require mid-level engineers and low-level technicians, a top research institution nearby by is an essential factor for continuous upgrading of skills.

- Key Tools

Site selectors for companies within in this sector are looking for a continuous stream of potential employees as the biotech sector grows to avoid costly relocation of workers from another state or country. The community must also be a “net exporter” of labor. Close proximity to major research universities with well-developed technology transfer programs or to local or regional transfer facilities is a primary consideration.

This is one sector where “quality of life” is perhaps more of an elusive factor in attracting biotech employees. Many experts agree that recruitment often matters most to young biotech companies trying to lure employees to an uncertain future...but this is just the phase when the employee has the least time to enjoy his or her surroundings and the primary factor is compensation.